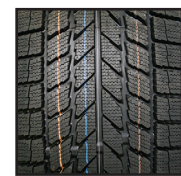
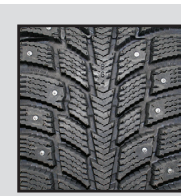


traction TIRES



Stud Alternative - Approved

The stud-less tire has over 3,200 sipes* to help grip the winter roadways. The soft rubber compound helps in wet weather conditions, but is too soft for warmer, summer driving.



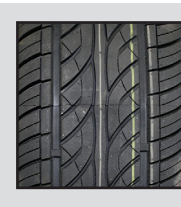
Studded - Approved

This tire has staggered studs designed to wear with the tire. While providing additional traction on snow and ice, studs damage roadways and are only permitted Nov. 1 through March 31.



All Season - Approved

This tire is designed for everyday use. The rubber compound is suitable for all weather conditions. Siping would greatly increase this tire's traction on winter roadways.




Performance - Not Approved

This tire is the most nimble tire and has the best response on dry pavement. It has the least amount of traction on winter roadways, making it strictly a summer tire.

*90 degree cuts in a tire that increase surface area, providing additional traction

traction ADVISORY



Traction tires advised – oversize loads prohibited. Oversize vehicles may be restricted from roadways during severe weather conditions.




Passenger vehicles must use approved traction tires. Chains are required on vehicles over 10,000 gross vehicle weight rating (GVWR), including large passenger trucks and SUV's over 10,000 GVWR.



Chains required on all vehicles – except four/all wheel drive. In extreme weather conditions, the advisory may indicate chains are required on all wheel drive vehicles.

Browning of Conifers




Springtime travelers through northwest mountain passes may notice brown needles on certain types of trees near the roadway. The browning pattern appears on the trees in spring until new growth takes over and green needles reemerge in summer. The transportation departments of several northwest states have observed this springtime phenomenon in the last three years and are looking for possible causes, including links to de-icers used to control snow and ice.

For more information: www.wsdot.wa.gov/winter/anti

Driver Information

Log onto www.wsdot.wa.gov for real time weather conditions, forecasts, camera images, mountain pass reports and other statewide traffic information.



For safe winter driving tips and information, look at our online brochure at:

<http://www.wsdot.wa.gov/winter/>

Online Information

WSDOT Home:
www.wsdot.wa.gov
WSDOT Mountain Pass Reports:
www.wsdot.wa.gov/traffic/passes
WSDOT Winter Driving Info:
www.wsdot.wa.gov/winter
Washington State Patrol:
<http://www.wa.gov/wsp/>

Contact Information

Chris Christopher
Washington State Department of Transportation
State Maintenance Engineer
christc@wsdot.wa.gov
(360) 705-7850



How WSDOT makes winter driving safer

The goal of WSDOT's Snow and Ice Program is to keep our state highways safe for winter driving. We focus on preventing snow and ice buildup on the roadways and removing snow and ice from the roadway when unfavorable winter weather arrives.

Over the last several winters, we have increased our use of de-icers and limited our reliance on abrasives such as sand. Using de-icers over several winters has resulted in better pavement conditions and improved freight movement. In addition we are able to maintain cleaner roadways and provide more bare and wet pavement during storms. These methods keep traffic moving and roadways safer, in an environmentally responsible manner.



Plow trucks at work on I-5 near Everett



WSDOT continues to...

- Limit corrosion to vehicles, roads, and bridges by using de-icer liquids which contain corrosion-inhibiting additives and by pre-wetting solid de-icers (salt) with the same enhanced liquids.
- Thoroughly train our maintenance work force on determining the proper usage rates for de-icers.
- Stay current on the latest technology in winter snow and ice control equipment to ensure efficient de-icer applications and accurate calibration of de-icer delivery equipment.
- Refine our weather forecasting models to ensure that the appropriate amount of de-icer is applied to handle the predicted weather conditions.
- Monitor roadside soil, surface water and groundwater to verify that chloride (salt) levels in the roadside environment do not exceed prescribed levels.
- Use much less chloride de-icers than midwest and east coast states due to our milder climate.
- Encourage winter drivers to prevent corrosion by washing their vehicles on a regular basis.
- Evaluate and improve our winter operations on a number of fronts, including sponsoring research into the effectiveness of corrosion inhibitors and the overall performance of de-icing products.

WSDOT Snow and Ice Control

We battle snow and ice with an arsenal of equipment to clear roads and keep drivers safe.



Snow plows at work on White Pass

snow PLOWS

Snow plows are the fundamental tool of the snow and ice program. Maintenance crews clear the roadways using a variety of plows, which are equipped with hopper or dump boxes to apply solid chemical and/or sand. We have approximately 500 plow trucks available statewide.



A typical de-icer truck

liquid SPRAYERS

When a storm is forecast, maintenance crews apply liquid chemical to bare roadways before the storm arrives. This prevents ice from forming and keeps snow and ice from bonding to the surface of the road. We have approximately 150 vehicles available statewide to apply liquid de-icers.



Snow blower at work on I-90

snow BLOWERS

We use snow blowers on some highways when the snow builds up and must be thrown clear of the roadway. Snow blowers also remove deep snow after avalanche control work on mountain passes. We have approximately 20 snow blowers available statewide.



Motor grader at work on Snoqualmie Pass

motor GRADERS

On roadways where compact snow and ice has formed, we use motor graders in addition to our snow plows to clear the road. We have approximately 40 graders available statewide.



Front-end loader clearing Chinook Pass

front-end LOADERS

We use front-end loaders at our stockpile sites to load both de-icers and sand into our trucks. We also use them to remove snow buildup on bridges, at intersections and on mountain passes. We have approximately 185 front-end loaders available statewide.



Avalanche charge above SR 410

controlled AVALANCHES

Heavy snowfall in the mountains followed by rain or warm weather can increase the risk of natural avalanches reaching the highway. To prevent avalanches from reaching the roadway and endangering drivers, our avalanche crews use explosives to set off controlled avalanches. This allows them to control when and where the snow comes down the mountain. When possible, we schedule avalanche control during off-peak travel time—and traffic is stopped as needed to ensure safety.

why does WSDOT use DE-ICERS?

- Save lives.
- Reduce collisions.
- Keep traffic moving.
- Return the road surface to a bare and wet condition much sooner after a snowfall than with plowing and sanding alone.



Liquid de-icer application on I-90 near George

what about the ENVIRONMENT?

Our commitment to environmental stewardship is reflected in our snow and ice program.

- All materials we use on the roadway must meet stringent national standards for heavy metals and other contaminants.
- We apply the least material possible, while targeting bare and wet pavement. We ensure this through a comprehensive employee training program and by maintaining highly calibrated equipment.
- In the past four years, we have taken hundreds of water and soil samples along the roadside, in ditches, in ponds, around stockpile sites, and in drinking water wells. Results show that WSDOT is in compliance with all environmental standards, and we are well below established thresholds.
- Solid de-icer stockpiles are covered to prevent material from leaching into groundwater.
- We monitor winter operations in other parts of the country and apply lessons learned to our own program as appropriate.
- We actively monitor national and international research on de-icing chemicals.
- We continue to look for new products and methods to safeguard the environment.



Collecting soil samples on US 97 near Blewitt Pass

De-icers we use

Liquids: All of the liquid de-icers listed below have corrosion inhibitors added to them. The inhibitors help to protect vehicles and structures such as bridges and guardrail from the corrosive effects of the various chloride compounds. These inhibitors are typically agricultural by-products.

Calcium chloride (*CaCl₂*) is the liquid de-icer used most frequently by WSDOT crews primarily because of its ability to melt ice at temperatures well below freezing.

Calcium chloride is also used as an ingredient in pickles and canned vegetables, as well as many sports drinks, bottled water and cheese recipes.

Magnesium chloride (*MgCl₂*) is used by a number of maintenance areas in the state, including Snoqualmie Pass, because of its ability to melt ice at temperatures well below freezing.

Magnesium chloride is also used in the preparation of tofu, as well as in the manufacture of textile, paper, fireproofing agents and refrigeration brine.

Sodium chloride or salt brine (*NaCl₂*) is common table salt. As a de-icer it is combined with water to produce a brine and applied to the road just like the other liquids. Sodium chloride's ability to prevent ice is not as great as the other liquids so its use is limited to more moderate temperatures.

Solids: We use one type of solid de-icer:

Sodium chloride or rock salt (*NaCl₂*) is essentially the same product that is used in the manufacture of salt brine. It is applied to the highway in solid form and is not as “clean” or refined as brining salt. It is likely to have some clay content, which explains the brown or red tint that drivers might see on the highway after an application.

We “pre-wet” the rock salt with the liquid de-icers described above. Crews can pre-wet the solid when it is in the truck or at the stockpile. Coating the solid salt with liquid helps prevent corrosion and also improves the salt's ability to melt and prevent ice.